

an actuator reciprocating the movable mirror for changing the width of the air gap, wherein the actuator includes:

a moving unit, which is coupled to the moving mirror, having a first electrode;

a fixed unit, which is coupled to the fixed mirror, having a second electrode for generating an electrostatic force to pull the moving unit by reacting to the first electrode in order to control a gap between the moving unit and the fixed unit; and

an elastic member connecting the moving mirror and the moving unit for delivering kinetic force of the moving unit in an adjustable manner with a predetermined ratio in order to finely control the air gap between the fixed mirror and the moving mirror.

6. (Amended) An optical communication device for demultiplexing various wavelengths, comprising:

an input optical fiber;

a number of output optical fibers; and

an array of optical tunable filters, wherein each of the optical tunable filters is regularly arranged to correspond to one output optical fiber, each of the optical tunable filters including:

a fixed mirror including a number of first erecting plates;

a movable mirror including a number of second erecting plates;

an air gap disposed between the fixed mirror and the movable; and

an actuator reciprocating the movable mirror for changing the width of the air gap,

wherein the actuator has:

a moving unit, which is coupled to the moving mirror, having a first electrode;

a fixed unit, which is coupled to the fixed mirror, having a second electrode for generating an electrostatic force to pull the moving unit by reacting to the first electrode in order to control a gap between the moving unit and the fixed unit; and

an elastic member connecting the moving mirror and the moving unit for delivering kinetic force of the moving unit in an adjustable manner with a predetermined ratio in order to finely control the air gap between the fixed mirror and the moving mirror.

7. (Amended) An optical communication device for multiplexing various wavelengths, comprising:

a number of input optical fibers;

an output optical fiber; and

an array of optical tunable filters, wherein each of the optical tunable filters is regularly arranged to correspond to one input optical fiber, each of the optical tunable filters including:

a fixed mirror including a number of first erecting plates;

a movable mirror including a number of second erecting plates;

an air gap disposed between the fixed mirror and the movable mirror; and

an actuator reciprocating the movable mirror for changing the width of the air gap,

wherein the actuator has:

a moving unit, which is coupled to the moving mirror, having a first electrode;

a fixed unit, which is coupled to the fixed mirror, having a second electrode for generating an electrostatic force to pull the moving unit by reacting to the first electrode in order to control a gap between the moving unit and the fixed unit; and

an elastic member connecting the moving mirror and the moving unit for delivering kinetic force of the moving unit in an adjustable manner with a predetermined ratio in order to finely control the air gap between the fixed mirror and the moving mirror.